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SOME BIRD LICE OF THE GENERA *ACIDOPROCTUS* AND
QUADRACEPS (NEOTROPICAL MALLOPHAGA MISCEL-
LANY NO. 3)

By M. A. CARRIKER, JR.

OPPORTUNITY is here taken to restudy the Old World mallophagan species *Acidoproctus rostratus* (Rudow) and *Quadriceps annulatus* (Denny), with reference to certain species from Colombia, and to describe two new species from South America. Thanks are extended to Dr. G. H. E. Hopkins for his cooperation in supplying the Old World material. All measurements are in millimeters.

Genus *ACIDOPROCTUS* Piaget

ACIDOPROCTUS *ROSTRATUS* (Rudow)

FIGURE 44, a-c

Ornithobius rostratus RUDOW, Zeitschr. für gesammten Naturw., vol. 27, p. 465, 1866. (Host: *Chenalopex* [= *Alopochen*] *aegypticus* = *Dendrocygna viduata* fide Hopkins.)

Dr. Hopkins, in a recent letter to me, says of this species: "The type being lost, somebody should erect neotypes. I dealt with this species in a previous paper (Ann. Mag. Nat. Hist., ser. 11, vol. 2, p. 195, 1938), and I regard *Dendrocygna viduata* as the type host, though that is anybody's guess, because the type was a nymph and it would certainly have been impossible to say from what species of *Dendrocygna* it got onto the goose (skin ?)."

If the type of *A. rostratus* was collected on a skin of *Alopochen aegypticus*, as Hopkins suggests, it must have certainly straggled there

when the bird was freshly killed, in company with the true host (*Dendrocygna*). Since *viduata* is one of the two species of *Dendrocygna* found in the same geographical range with *Alopochen aegyptiacus* (and is the more widely distributed of the two) it seems logical that it is the true host. Even if Rudow's type had been taken from a zoo specimen the chances are that it came from *D. viduata*, since that is the species most likely to have been present in the zoological garden with *Alopochen*.

Having recently collected specimens of *Acidoproctus* from *Dendrocygna autumnalis discolor*, I requested from Dr. Hopkins the loan of specimens of *A. rostratus* for comparison with them. He very kindly sent me a series of 5 males and 11 females collected in the Transvaal, asking me to designate a pair of neotypes to be deposited in the British Museum, to keep neoparatypes for myself, and to return the remainder to him.

A comparison of *A. rostratus* with my specimens from *D. a. discolor* from Colombia strengthens the contention of Dr. Hopkins regarding the true host of the former, since its affinities are clearly with my specimens from *D. a. discolor* rather than with *A. taschenbergi* Hopkins from *Alopochen*, with which it has been directly compared. In addition, *A. rostratus*, as Dr. Hopkins says is a "brown" form, while *taschenbergi*, *moschatae*, and *kelloggi* are pale-colored, with sharply defined dark markings.

The species described below from *D. a. discolor* is also a brownish form with dark markings not sharply defined or prominent. The same type of genitalia is found in the four species mentioned above, except that the endomera are strikingly different in all of them. The chaetotaxy of the genital plate in the females is also similar in the four species and seems to be characteristic of the genus. All four forms differ in the shape and proportions of the preantennary area of the head, the frontal emargination, and to some extent in the proportions of the whole head. The general appearance of *A. rostratus* is very similar to that of *A. hopkinsi*, especially in the abdominal structure, but the whole insect is much larger. Piaget's figure of the female of *A. bifasciatus* (= *rostratus*) is very good (Les Pédiculines, 1880, atlas, pl. 17, fig. 5), and I have given a figure of the male of *hopkinsi* illustrating the dimorphic abdominal structure of the two species.

A very unusual character in both *rostratus* and *hopkinsi* is the sexual dimorphism in the size of the thoracic segments, those of the female being considerably smaller, while the abdomen is larger. In *taschenbergi* and *kelloggi* these segments are slightly larger in the female. Figures are also given of the preantennary area and male genitalia of both *kelloggi* Carriker and *taschenbergi* Hopkins (fig. 45, a-d).

ACIDOPROCTUS HOPKINSI, new species

FIGURE 44, *d-g*

Types.—Male and female adults, from *Dendrocygna autumnalis discolor*, collected by the author at Simití, Bolívar, Colombia, March 31, 1947; U.S.N.M. No. 58966.

Diagnosis.—The ground color of the insect is pale brownish, with most of the body markings dark brown (not pitchy black on a clear ground as in other species of the genus), agreeing in this respect with *A. rostratus*. The only pitchy markings are those at the base of anterior mandibular condyles, at base of occipital bands, and at each side of the anterior portion of the pterothorax at its point of attachment with the prothorax. In the male the whole pleurite is dark brown, with a darker band along the inner margin in segments I to III. In the female there is a dark-brown band along the inner margin of pleurites I to VII, with a paler brown patch covering the median portion of the sclerite but not reaching to the lateral margin.

TABLE 1.—Measurements of *Acidoproctus hopkinsi* and *A. rostratus*

Structure	<i>hopkinsi</i>				<i>rostratus</i>			
	Male		Female		Male		Female	
	Length	Width	Length	Width	Length	Width	Length	Width
Body.....	3.28	.....	3.45	.....	4.28	.....	4.14	.....
Head {frons.....	.....	0.43	.....	0.402	.....	0.51	.....	0.445
Head {temples.....	.868	.685	.806	.64	1.053	.806	.91	.718
Head {emargination.....	.195	.153	.185	.174	.25	.174	.22	.17
Prothorax.....	.314	.402	.282	.37	.38	.488	.326	.423
Pterothorax.....	.434	.705	.391	.662	.67	.846	.50	.75
Abdomen.....	2.21	.814	2.43	.885	2.54	1.02	2.67	1.02
Antennae.....	.37	.068	.303	.062	.412	.087	.377	.076
Basal plate.....	.195	.108	.....	.....	.195	.174	.....	.....
Parameres.....	.163	.105	.....	.....	.155	.126	.....	.....
Endomera.....	.163	.055	.....	.....	.141	.077	.....	.....

Tergites I to V are divided medially in the male; the remainder are entire, while in the female all tergites from I to VII are divided. The sternites of both sexes are entire but do not seem to extend laterally to the paratergals. There is a slight sexual dimorphism in the shape of the frontal emargination, that of the female being almost square, with anterior portion not constricted (fig. 44, *d-f*). The abdominal structure also differs in the sexes. Pleurites I to III are normal and equal in both sexes, but in the male the abdomen abruptly narrows with segment IV, then decreases gradually in width to VII, and with pleurites IV to VI of abnormal shape (fig. 44, *g*). In the female the abdomen increases in width gradually from I to III, then gradually narrows to VII. The pleurites are equal in structure from I to VII, but all have a peculiar enlargement at the inner anterior corner,

ending in a clear circle, which increases in size posteriorly. In the male sternites IV to VII seem to be fused into a solid plate, as shown in the figure, but in the female they are separated by narrow hyaline bands, except VII and VIII, where the genital plate covers all of VII and anterior half of VIII. The chaetotaxy of the genital plate is similar in the four species I have seen, differing only in size, length, and number of spines, but the shape of the plate itself differs, as may be seen from the figures.

The type series of the species consists of four males and two females, with one male and three females from other individuals of the same host.

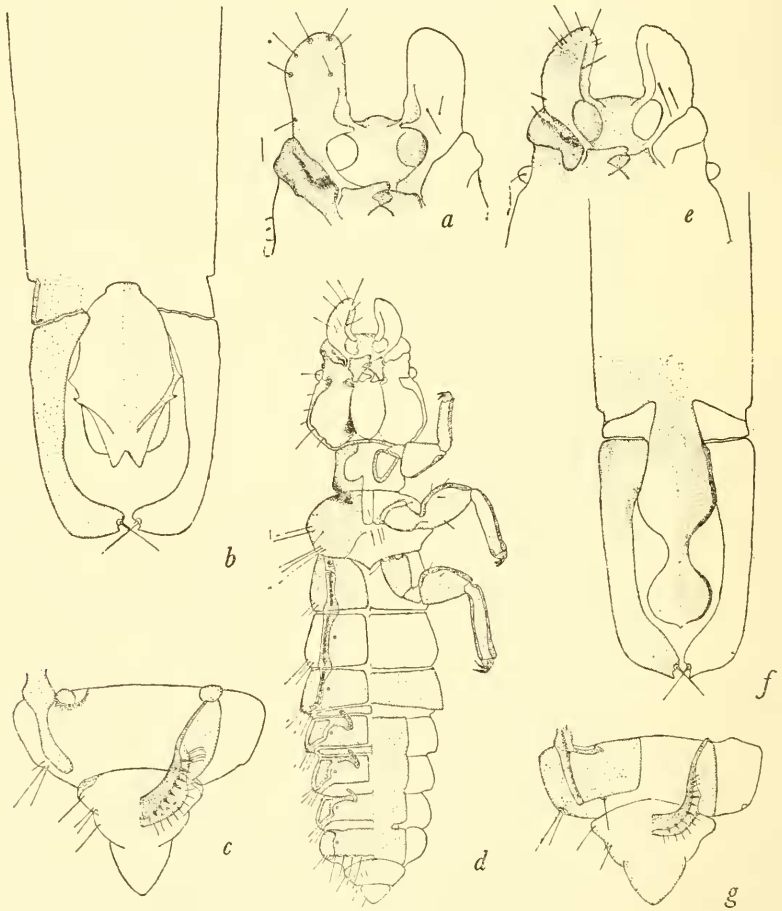


FIGURE 44.—ACIDOPROCTUS

a-c, *Acidoproctus rostratus* (Rudow): a, Front of head of male; b, male genitalia; c, genital plate of female.

d-g, *A. hopkinsi*, new species: d, Male; e, front of head of male; f, male genitalia; g, genital plate of female.

Genus QUADRACEPS Clay and Meinertzhagen

QUADRACEPS ACUTICEPS (Carriker)

Multicola acuticeps CARRIKER, Bol. Ent. Venezolana, vol. 4, p. 179, 4 figs., 1945.

(Host: *Podager nacunda minor*, error; should be *Burhinus bistriatus vocifer*.)

The specimens of Mallophaga from which this species was described were inadvertently given the number of *Podager*, collected on the same day. The error was not discovered until recently when specimens of a *Quadriceps* from *Burhinus superciliaris* were being compared with *Q. annulatus* from *Burhinus oedecnemis oedecnemis*.

Dr. Hopkins has kindly lent me a pair of *Q. annulatus* from the type host, which has been compared with my series of related species from *Burhinus bistriatus vocifer* and *B. superciliaris*, with the result that both series were found to differ from *annulatus* and inter se.

The species from *B. bistriatus vocifer* has already been described under the name of *Multicola acuticeps* Carriker, and now becomes *Quadriceps acuticeps* (Carriker), while the specimens from *B. superciliaris* are described below.

The figures published for *Q. acuticeps* (Carriker) are correct in all details except the clypeal area in the head of the female (loc. cit., p. 179), which (cf. fig. *g*) is too narrow, the specimen having been slightly shrunken from excessive clearing. However, the enlarged figure of the clypeal area of the male (loc. cit., p. 181) is correct, although in many specimens the clypeal signature extends farther beyond the frons than is shown in the figure, and the hyaline border is wider. *Q. acuticeps* is very close to *annulatus* in size. The only appreciable differences are: *Q. acuticeps* has the prothorax larger (male 0.20 by 0.29 against 0.14 by 0.26) in both sexes; the head of the female of *acuticeps* is longer, wider at temples but considerably narrower at frons. The clypeal signature seems to differ, but this cannot be determined with accuracy. The structure of the abdominal sclerites in both sexes is practically the same as in *annulatus*, the sexes being somewhat dimorphic in this respect. The pleurites are narrow, with deeply reentering heads, the same in both sexes; in the male, tergites I and II are separated medially, but cover the whole segment, in III to V they are entire, and in VI to VIII are separated medially, and with the inner portion much narrowed.

In the female, tergite I is separated medially, while II to V are deeply incised medially on anterior margin and the remainder are entire and cover the whole segment. The sternites in the male are widely separated from the pleurites, while in the female they seem to be fused with them.

The male genitalia seem to differ considerably from those of *annulatus* (fig. 45, *h*) in the shape and structure of the parameres, al-

though the endomera and penis are almost identical. The figure given of the genitalia of *annulatus* may not be entirely accurate as to shape of parameres, since they were not clearly visible in the only male available for examination. The basal plate also differs in shape, that of *acuticeps* being slightly narrower in anterior portion, while the reverse is true of *annulatus*. Summarizing briefly the differences between *acuticeps* and *annulatus*, we have a larger prothorax in the former, a decided difference in shape of head in females, but not in the males, and lastly the male genitalia. *Q. acuticeps* should probably be reduced to a subspecies of *annulatus*.

TABLE 2.—Measurements of *Quadriceps annulatus* and *Q. acuticeps*

Structure	<i>annulatus</i>				<i>acuticeps</i>			
	Male		Female		Male		Female	
	Length	Width	Length	Width	Length	Width	Length	Width
Body.....	1.76	-----	2.06	-----	1.76	-----	2.02	-----
Head {frons.....	-----	0.152	-----	0.185	-----	0.14	-----	0.136
Head {temples.....	.586	.46	.597	.49	.597	.467	.673	.521
Prothorax.....	.14	.26	.17	.28	.20	.293	.20	.314
Pterothorax.....	.195	.39	.24	.434	.205	.40	.26	.434
Abdomen.....	.955	.564	1.23	.63	.99	.533	1.17	.655
Antennae.....	.25	.04	-----	-----	.25	.046	.242	.045
Basal plate.....	.15	.10	-----	-----	.195	.098	-----	-----
Parameres.....	.13	.095	-----	-----	.142	.11	-----	-----
Endomera.....	.08	.05	-----	-----	.073	.05	-----	-----

QUADRICEPS BURHINOIDES, new species

FIGURE 45, c, f

Types.—Male and female adults, from *Burhinus superciliaris*, collected by the author at Paramonga, Peru, February 16, 1932; in collection of author.

Diagnosis.—This species is larger than either *annulatus* or *acuticeps* and has the head of a somewhat different shape, as shown in the figure. The male genitalia resemble closely those of *acuticeps* in general shape, with the difference in size very small. In the female, abdominal tergite V is deeply incised medially, while in *acuticeps* and *annulatus* it is entire; in the male there is a slight median incision on tergite III, with I and II divided medially as in *acuticeps*. The genitalia differ from those of *acuticeps* in minor details. The basal plate is narrower basally, with sides incurved, while the lateral chitinous margins are differently shaped; the base of the parameres is rounded, not angulated as in *acuticeps*, and their shape is somewhat different along inner edge. The endomera also differ slightly in detail.

TABLE 3.—Measurements of types of *Quadriceps burhinoides*

Structure	Male		Female	
	Length	Width	Length	Width
Body.....	1.81	0.155	2.38	0.175
Head { frons.....		.485		.543
{ temples.....	.62		.716	
Prothorax.....	.195	.293	.193	.33
Pterothorax.....	.24	.434	.263	.488
Abdomen.....	.99	.67	1.33	.81
Antennae.....	.25	.046	.27	.054
Basal plate.....	.205	.098		
Parameres.....	.15	.108		
Endomera.....	.087	.054		

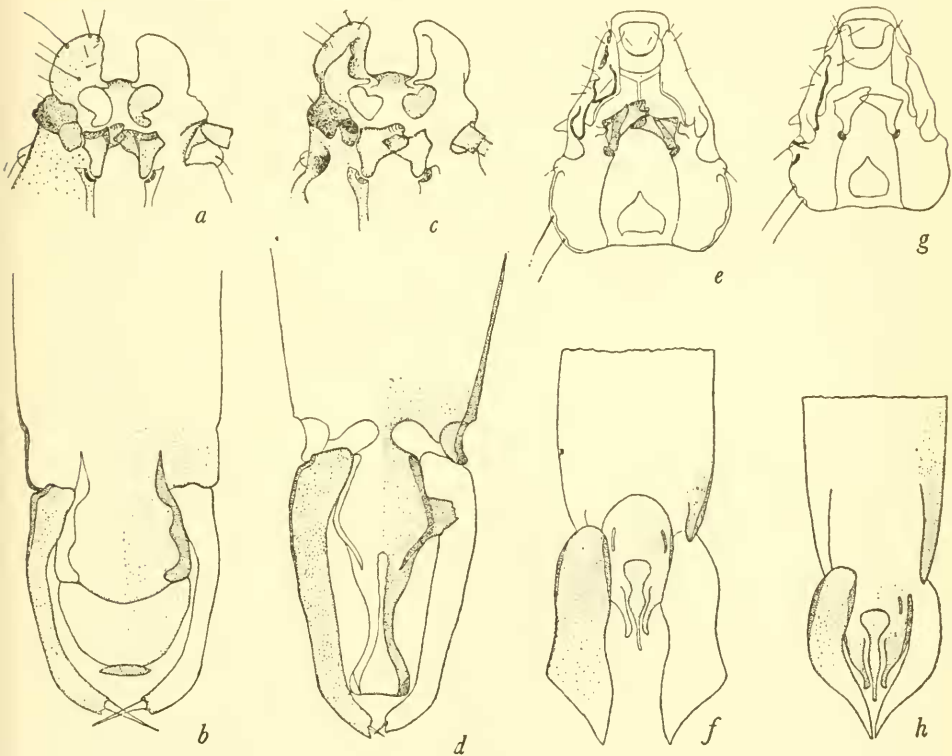


FIGURE 45.—ACIDOPROCTUS AND QUADRICEPS

a-b, *Acidoproctus taschenbergi* Hopkins: *a*, Front of head of male; *b*, male genitalia.
c-d, *A. kelloggi* Carriker: *c*, Front of head of male; *d*, male genitalia.
e-f, *Quadriceps burhinoides*, new species: *e*, Head of female; *f*, male genitalia.
g-h, *Q. annulatus* (Denny): *g*, Head of female; *h*, male genitalia.

The following is a list of mallophagan types described by the author prior to 1936, with proper allocation of their genera and corrections for their hosts:

JOURNAL OF THE NEW YORK ENTOMOLOGICAL SOCIETY, 1902, pp. 216-229

Docophorus cephalosus (=Saemundssonina). Host: *Colaptes cafer collaris*. A straggler from some shorebird.

Nirmus truncatus var. *magnocephalus* (=Rhynonirmus magnocephalus). Host: *Capella delicata*.

Nirmus biocellatus var. *nigropictus* (=Brüelia nigropicta). Host: *Pica pica hudsonia*.

Nirmus infrequens (=Brüelia). Host: *Calcarius lapponicus lapponicus*.

Nirmus angustifrons (=Brüelia). Host: *Chondestes grammacus grammacus*.

Nirmus trimarginis (=Penenirmus). Host: *Certhia familiaris montana*.

Either a synonym or subspecies of *Penenirmus gulosus*.

Colpocephalum quadrinaculatus (=Myrsidea). Host: *Loxia curvirostra minor*.

Physostomum picturatus (=Ricinus). Host: *Vernivora celata celata*.

Nitzschia pulicaris var. *tibialis* (=Dennyus). Host: *Aëronautes saxatilis saxatilis*. This species was renamed (Journ. New York Ent. Soc., 1903, p. 56)

Nitzschia bruneri for no valid reason, so *N. bruneri* (1903) becomes a pure synonym of *N. tibialis* (1902).

Akidoproctus kelloggi (=Acidoproctus). Host: *Aythya valisineria*.

UNIVERSITY OF NEBRASKA STUDIES, vol. 3, pp. 123-197, 1903

Docophorus platystoma umbrosus (=Craspedorhynchus umbrosus). Host: *Leucopternis semiplumbea*.

Docophorus transversifrons (=Craspedorhynchus). Host: *Micrastur guerilla*.

Docophorus bruneri (=Philoapterus). Host: *Manacus candei*.

Docophorus underwoodi (=Philoapterus). Host: *Psilorhinus mexicanus cayano-genys*.

Docophorus cancellosus (=Austrophiloapterus). Host: *Ramphastos swainsoni*. Genotype.

Nirmus fuscus epustulatus (=Degeeriella epustulata). Host: *Accipiter bicolor*.

Nirmus rhamphasti (=Brüelia). Host: *Ramphastos swainsoni*.

Nirmus parabolocybe (=Brüelia). Host: *Tyrannus melancholicus chloronotus*.

Nirmus francisi (=Bizzarifrons). Host: *Zarhynchus wagleri*.

Nirmus melanococcus (=Brüelia). Host: *Piranga bidentata sanguinolenta*. Type lost in remounting, 1948.

Nirmus pseudophaeus (=Degeeriella). Host: *Pezopetes capitalis*, and a straggler from some hawk. The only hawk taken on the Vol Irazu was *Butco swainsoni* (wrongly identified as *B. borealis costaricensis*), from which specimens of *Degeeriella curvilineatus* were collected. *N. pseudophaeus* is not at all the same species as was identified as *curvilineatus*, and so the locality for the host is undoubtedly wrong. Its true host will probably not be determined.

Nirmus brachythorax ptiliogonus (=Brüelia ptiliogonus). Host: *Ptilogonys caudatus*.

Nirmus hastiformis (=Trogonirmus). Host: *Chrysotrogon caligatus, caligatus*. Genotype.

Nirmus caliginus (=Penenirmus). Host: *Turdus grayi casius*.

- Lipeurus longipes tinami* (= *Pseudolipeurus tinami*). Host: *Tinamus major castaneiceps*.
- Lipeurus postmarginatus* (= *Oxylipeurus*). Host: *Ortalis garrula frantzii*.
- Goniocotes curysema* (= *Physeonelloides*). Host: *Odontophorus guttatus*; error, = *Claravis mondetoura*.
- Ornichelax robustus* (= *Ornichelax alienus robustus*). Host: *Tinamus major castaneiceps*.
- Kelloggia brevipes* (= *Kelloggia*). Host: *Tinamus major castaneiceps*.
- Goniodes minutus* (= *Hcpharthrogaster minutus*). Host: *Tinamus major castaneiceps*.
- Goniodes aberrans* (= *Pterocotes*). Host: *Tinamus major castaneiceps*. Genotype.
- Laemobothrion delogramma* (= *Laemobothrion*). Host: *Sarcoramphus papa*.
- Laemobothrion oligothrix* (= *Laemobothrion*). Host: *Buteo borealis costaricensis*; error, = *B. swainsoni*.
- Physostomum jimenezii* (= *Ricinus*). Host: *Amazilia tzacatl tzacatl*. The type is from *Amazilia*, while the specimens from *Selasphorus flammula* are not quite the same.
- Physostomum doratophorum* (= *Trochilocetes*). Host: *Selasphorus flammula*.
- Physostomum leptosomum* (= *Ricinus*). Host: *Myiozetetes cayanensis*; error, = *M. similis texensis*. The male type is from the above-mentioned host, but the females called this species are from *Myiarchus tuberculifer nigricapillus* and are, to all appearances, the same species, but without the other sex for comparison one cannot be sure.
- Physostum subangulatum* (= *Ricinus*). Host: *Thraupis episcopus diaconus*.
- Colpocephalum gypagi* (= *Colpocephalum*). Host: *Sarcoramphus papa*. This species is a *Colpocephalum* without doubt, and the host is correct, for I have taken it in Colombia on the same host. It is, however, a synonym of *C. megalops* from the same host.
- Colpocephalum osborni costaricensis* (= *Ferrisia*). Host: *Buteo borealis costaricensis*; error, = *B. swainsoni*.
- Colpocephalum extraneum* (= *Myrsidea*). Host: *Nyctidromus albicollis albicollis*.
- Colpocephalum luroris* (= *Myrsidea*). Host: *Zarhynchus wagleri*. May possibly be a straggler.
- Colpocephalum mirabile* (= *Myrsidea*). Host: *Zarhynchus wagleri*.
- Nitzschia bruneri* (= *Dennyus tibialis*). Host: *Aeronautes saxatilis saxatilis*.
- Nitzschia bruneri meridionalis* (= *Dennyus*). Host: *Chaetura griseiventris*. A good species, very different from *D. tibialis* (= *D. bruneri*).
- Menopon tridens costaricense* (= *Pseudomenopon*). Host: *Laterallus melanophaius cinericeps*. Possibly a synonym of *P. tridens*, but doubtful.
- Menopon ortalidis* (= *Menacanthus ortalidis*). Host: *Ortalis garrula frantzii*.
- Menopon macrocybe*. Host: *Buteo platypterus*. This is clearly a *Kurodaia*, very similar to the owl-infesting species of that genus, but there is no question of the correctness of the host.
- Menopon praecursor meridionale* (= *Menacanthus meridionale*). Host: *Odontophorus leucolaemus*.
- Menopon tityrus*. Host: *Tityra semifasciata costaricensis*. Dr. Hopkins thinks this is a *Machaeriluemus*, but I am not completely convinced. However, it is closer to that genus than to any other.
- Menopon thoracicum majus* (= *Myrsidea majus*). Host: *Turdus grayi casius*.

- Menopon thoracicum* var. *fuscum* (= *Myrsidea fusca*). Host: *Ramphocelus passerini passerini*.
- Menopon difficile* (= *Menacanthus* ?). Host: *Atlapetes brunnei-nucha brunnei-nucha*. This species has very long peculiar head spines and an unusually heavy gular plate which extends beyond the occipital margin. Specimens must be cleared for further study. This may represent a new genus.
- Menopon palloris* (= *Myrsidea*). Host: *Stelgidopteryx ruficollis fulvipennis*.
- Menopon laticorpus* (= *Machaeritaemus*). Host: *Thamnophilus doliatus intermedius*.

ENTOMOLOGICAL NEWS, vol. 21, pp. 51-57, 1910

- Colpoccephalum spinulosum obscurum* (= *Actornithophilus*). Host: *Arenaria interpres morinella*. Type in the Museum of the University of Michigan.
- Colpocephalum ocellaris*. Host: *Arenaria interpres morinella* = juv. of *A. obscurus*.
- Colpocephalum subpustulatum* (= *Actornithophilus*). Host: *Ceryle alcyon*. Type in the Museum of the University of Michigan.
- Menopon hirsutum*. Host: *Dendrocopos pubescens medianus*. Genus uncertain, but not a *Menopon*, since it has combs of spines on hind femora and abdominal sternites. I have the same genus from several South American hosts, including a woodpecker. Type in the Museum of the University of Michigan.
- Nitzschia latifrons*. Host: *Riparia riparia riparia*. This is possibly a *Myrsidea*, but without a reexamination of the type it is not possible to be certain. Type in the Museum of the University of Michigan.